Amendments to the Specification:

Amendments to the specification, including paragraph numbers, refer to the specification as published June 16, 2005 as Patent Application Publication 2005/012908 A1.

Please amend the following paragraphs as indicated.

[0005] Another approach is to use an inclined feedback grating. This structure is referred to in the art as ~~A-DFB~~ alpha-DFB laser. Here the grating provides both wavelength selective feedback as well as lateral waveguiding. The fabrication of these devices, however, requires two epitaxial steps, the first one being used to define the lower cladding and active region on a semiconductor substrate, the second one completes the laser layer after the grating has been fabricated. The necessity of a regrowth step on a patterned surface limits this technique to a subset of available semiconductor materials, and does not represent a general solution for the generation of high single-mode output powers.

[0031] The typical basic laser diode 10 shown in Figure 1a is of cuboid formation with a flat diode surface 16. Commencing from the basic laser diode 10 illustrated in Figure 1a, the embodiment of an array of optically coupled ridge waveguide DFB laser diodes with a lateral grating structure 22, according to some embodiments of the invention and shown in Figure 1c and 1d, is advantageously produced in essentially two process phases. As a transitional stage

following the implementation of a first process phase, Fig. 1b shows a waveguide diode 17 in which the diode surface 16 has been subjected to a material removal process, such as for example a dry or wet etching process, in order to obtain the illustrated stepped surface formation with a number of waveguide ridges 18 aligned parallel to each other and extending in the longitudinal direction of the waveguide diode 17. The spacing between the waveguide ridges can be varied over the array, as it may be advantageous for the performance of the device to have the ridges at a non-equidistant spacing. Furthermore, it may be advantageous to use a different width for each of the waveguiding ridges in the array. The aforementioned material removal process gives rise to surfaces 19, which are formed between the waveguide ridges 18. Furthermore, flat surfaces 20 and 21 are created lateral to the outermost waveguides. These surfaces 19, 20, 21, will be referred to in the following as carrier surfaces. In a process step following the etching of the waveguide ridges, the carrier surfaces are typically covered by a thin insulating layer 26.

[0032] Commencing from the waveguide diode 17 illustrated in Figure 1b, the embodiment of an array of optically coupled ridge waveguide DFB laser diodes with a lateral grating structure 22 shown in figure 1c and 1d is produced by forming a metallic lattice structure 23 on the carrier surface 19, typically by subjecting the carrier surface 19 to a lithographic process (e.g., by electron beam lithography) and a subsequent metallization process well-known in the art and not described in detail here. A metallic lattice structure can also be formed on the outer

carrier surfaces 20 and 21, again by the application of a lithographic process. This second process phase results in an array of optically coupled ridge waveguide DFB laser diodes with lateral grating structures 22 and 23 illustrated in Figure 1c and 1d with the metallic lattice structure 23 arranged on the carrier surfaces 19, 20 and 21 above the laser layer 13. The insulating layer 26 can be utilized to define precisely the position of the structural regions 19, 20 and 21 of the metallic lattice structure 23 arranged on the epitaxial structure 12 relative to the laser layer 13. This insulating layer 26 can be provided in the form of an etch stop layer included in the epitaxial structure 12 which defines the depth of the lithographic structure produced using an etching process and thereby defines the position of the metallic lattice structure 23 relative to the laser layer 13. The insulating layer 26 can also be provided by an additionally deposited layer, which again defines the position of the metallic lattice relative to the laser layer 13.